Middle Columbia River Steelhead ESU

Hatchery Program Assessment

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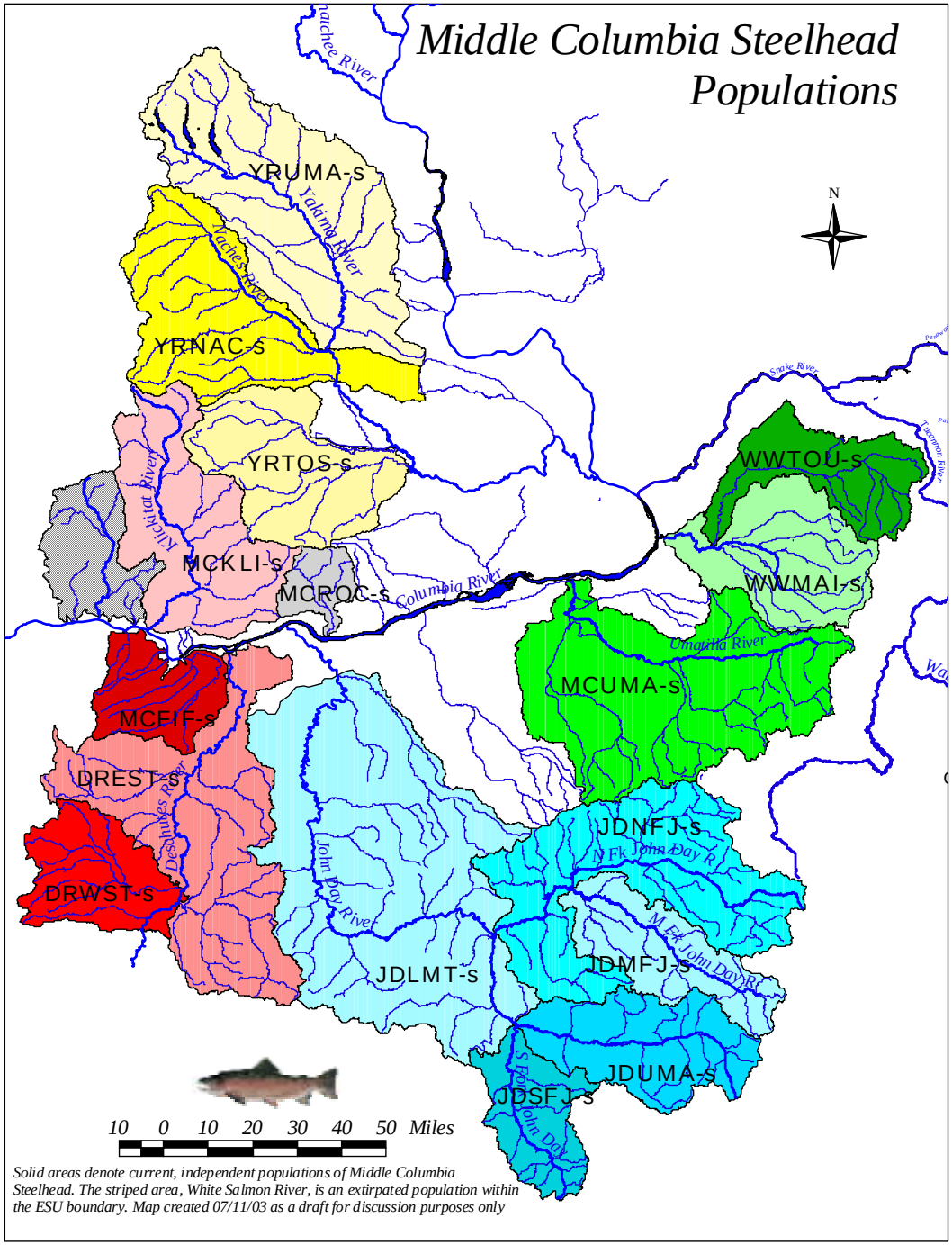
Summary

- 16 Historic Populations In ESU
  - 2 Winter Steelhead Populations
  - 14 Summer Steelhead Populations
- 4 In ESU Artificial Propagation Programs
  - All Summer Steelhead Programs
- 5 Non-ESU Artificial Propagation Programs
  - 1 Winter Steelhead Programs
  - 4 Summer Steelhead Programs



Solid areas denote current, independent populations of Middle Columbia Steelhead. The striped area, White Salmon River, is an extirpated population within the ESU boundary. Map created 07/11/03 as a draft for discussion purposes only

ESU Artificial Propagation Programs

- Summer Steelhead Program Releases:
  400,000 smolts
- Yakima River Kelt Program
  - 200 to 400 reconditioned kelts annually

Artificial Propagation Programs

Program	Location	Releases
Touchet River Endemic Program (2000)	Touchet River	85,000
Yakima River Kelt Reconditioning Program (2000)	Yakima River	~200- 400
Umatilla River Summer Steelhead Program (1992)	Umatilla River	150,000
Deschutes River Summer Steelhead Program (1973)	Deschutes River	165,000

Non-ESU Artificial Propagation Programs

- Early Winter Steelhead Releases:
  20,000 smolts
- Summer Steelhead Releases:
  270,000 smolts

Non-ESU Artificial Programs

Program	Location	Release
Touchet River Summer Steelhead	Touchet River	50,000
Walla Walla River Summer Steelhead	Mainstem Walla Walla	100,000
Klickitat River Summer Steelhead	Lower Klickitat River	100,000
Big White Salmon River Winter Steelhead	Big White Salmon	20,000
Big White Salmon River Summer Steelhead	Big White Salmon	20,000

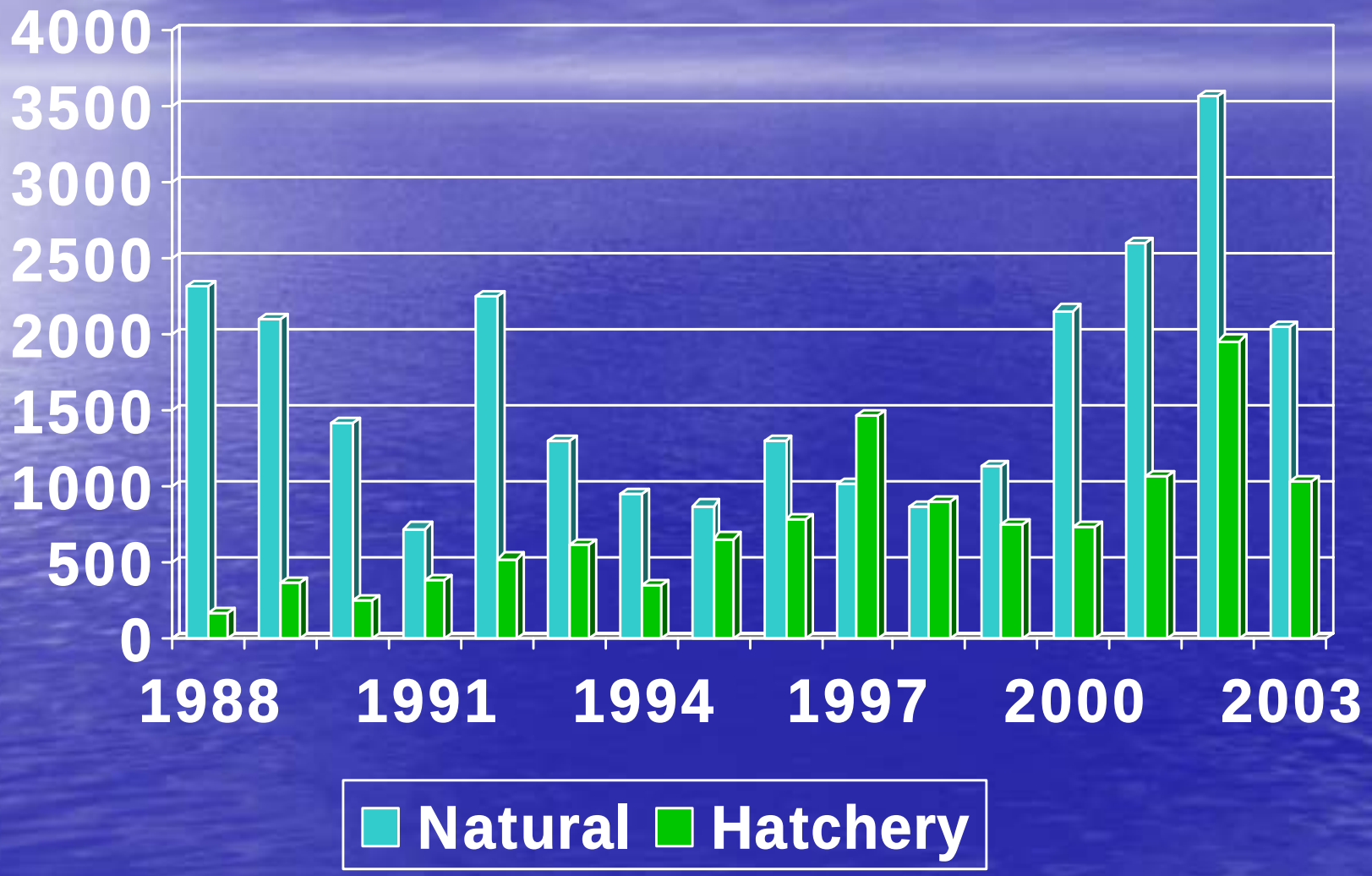
Hatchery Listing Policy

Effects of hatchery fish on the likelihood of extinction of an ESU, depend on how hatchery fish affect four key attributes.

Effects on Abundance of ESU

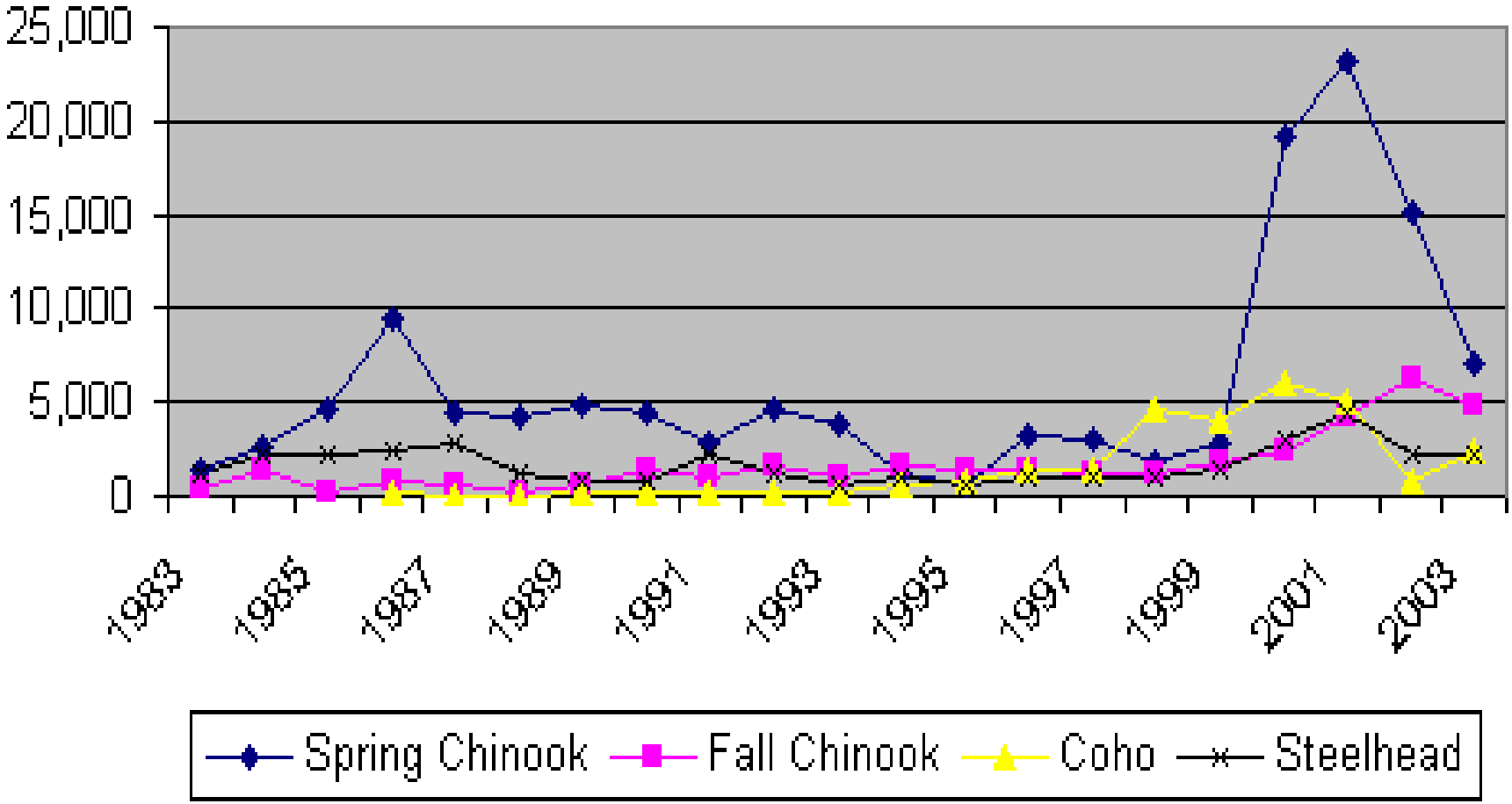
- Programs have increased abundance in Umatilla River and Deschutes River
- Yakima Kelt Reconditioning program has increased the total number of spawning adults
- Touchet River program is too new to determine success

Umatilla Summer Steelhead Abundance Trend



Run Year	Wild	Round Butte Hatchery	Stray Hatchery	Total Hatchery
1985-86	9,624 b/	7,382	5,056 c/	12,106
1986-87	6,207 b/	9,064	9,803 c/	18,358
1987-88	5,367 b/	9,209	8,367	17,623
1988-89	3,546	3,849	2,909	6,336
1989-90	4,278	2,758	3,659	6,504
1990-91	3,653	1,990	2,852	4,786
1991-92	4,826	3,778	8,409	11,859
1992-93	904	2,539	4,261	6,008
1993-94	1,487	1,159	4,293	5,476
1994-95	482	1,781	4,391	6,126
1995-96	1,662	2,708	11,855	12,828
1996-97	3,458	5,932	23,618	28,416
1997-98	1,820	5,042	17,703	22,511
1998-99	3,800	3,527	11,110	15,120
1999-2000	4,790	2,628	13,785	15,219
2000-2001	8,985	4,380	15,072	19,310
2001-2002	8,749	9,373	25,263	31,784
2002-2003	9,363	8,880	15,203	23,004

Yakima River Salmon Counts
1983 to Present



Effects on Productivity of ESU

- Unknown if program increasing productivity of naturally spawning populations
- Touchet River endemic program too early to know

Effects on Spatial Structure of ESU

- Hatchery programs have not increased spatial structure, program fish are returning to areas with natural fish present

Effects on Diversity of ESU

- Programs have not increased diversity, Umatilla program supplements the natural spawning population
- Touchet River endemic program is reducing impacts to diversity, reducing and eliminating the use of LFH stock
- Deschutes River program may be decreasing diversity

Effect of Artificial Propagation on VSP Attributes

Viability Criteria	BRT VSP Risk Score	Decreases Risk	Neutral or Uncertain	Increases Risk
Abundance	2.7	√		
Productivity	2.6		√	
Spatial Structure	2.6		√	
Diversity	2.5	√		

Recommendation: No Change Threatened